IN THE CLAIMS:

Please cancel without prejudice or disclaimer claims 1-5 the underlying PCT application and ADD new claims 6-16 in accordance with the following:

Claims 1-5 (cancelled).

6. (New) A method for decoding a data sequence of K information bits encoded with aid of a binary convolutional code, comprising:

precisely calculating in a first operation, on a trellis diagram having trellis segments, first metrics values of all trellis segments for a forward direction and for a backward direction using a MaxLogMAP algorithm;

selecting a first set of trellis segments as first interpolation nodes from the first operation;

storing first associated metrics values for the first set of trellis segments in a first memory level;

calculating in an i-th operation for $1< i \leq n$, i-th metrics values of internodal trellis segments positioned between the interpolation nodes of an i-1-th operation for both directions using stored metrics values of interpolation nodes of the i-1-th operation;

selecting an i-th set of trellis segments as i-th interpolation nodes from the i-th operation;

storing i-th associated metrics values for the i-th set of trellis segments in an i-th memory level;

repeating said calculating, selecting and storing of the i-th operation metrics values n -1 times until the metrics values of the forward and backward directions meet in one trellis segment; and

carrying out a decision process to calculate soft output values for decoding.

7. (New) A method according to claim 6,

further comprising assigning a memory depth of $\delta 1$ for each direction of the first memory level, and

wherein said storing of the first associated metrics values in the first memory level uses each $K/\delta 1$-th trellis segment.

8. (New) A method according to claim 7,

further comprising assigning a memory depth of δi for each direction of the i-th memory level, and

wherein said storing of the first associated metrics values in the first memory level uses each K/δ1/.../δi-th trellis segment.

9. (New) A method according to claim 8, wherein a delayed decision phase is used in calculating the soft output values for terminated codes.

10. (New) A method according to claim 9, wherein the decoding is carried out on precisely one application-specific module.

11. (New) A method according to claim 8, wherein the decoding is carried out on precisely one application-specific module.

12. (New) A method according to claim 7, wherein a delayed decision phase is used in calculating the soft output values for terminated codes.

13. (New) A method according to claim 7, wherein the decoding is carried out on precisely one application-specific module.

14. (New) A method according to claim 6,

further comprising assigning a memory depth of δi for each direction of the i-th memory level, and

wherein said storing of the first associated metrics values in the first memory level uses each K/δ1/.../δi-th trellis segment.

15. (New) A method according to claim 6, wherein a delayed decision phase is used in calculating the soft output values for terminated codes.

16. (New) A method according to claim 6, wherein the decoding is carried out on precisely one application-specific module.